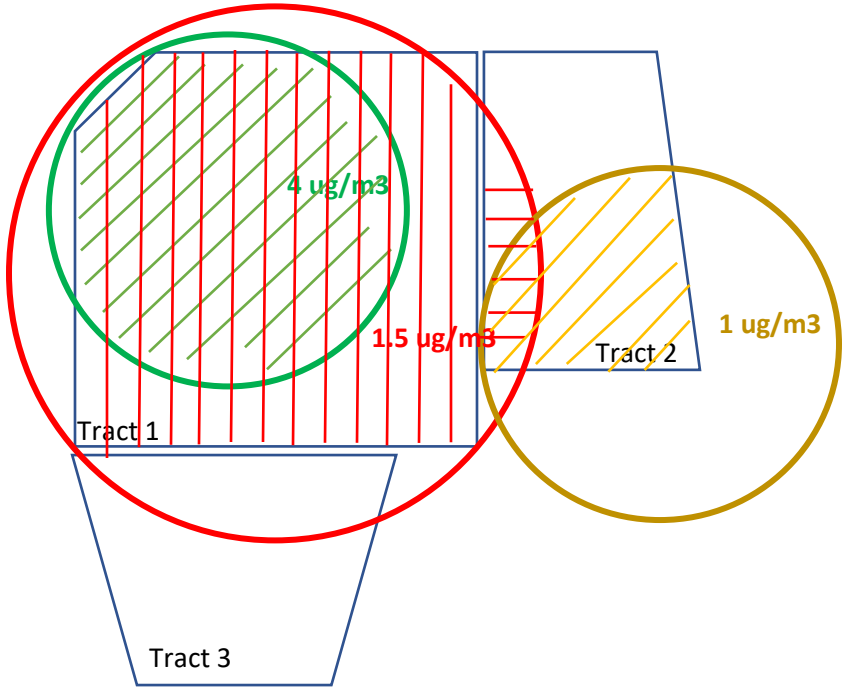
Visual example of overlaying monitor buffers on tract shapefiles

Example: a. 3 monitors (green: 4μg/m^3, red: 1.5 μg/m^3, yellow: 1 μg/m^3)
b. 3 tracts (tract 1, tract 2, tract 3)



Suppose area of tract 1: 100 m^2, red covers 100%, green covers 60%, red + green (shared coverage) 60%

PM2.5 value for census tract 1: = shared area average + red coverage

= [[(4 μg/m^3 + 1.5 μg/m^3)](1/2) x 60%] + [1.5 μg/m^3 x 40%] = (5.5 x 60%) μg/m^3 + 0.6 μg/m^3 = 1.65 + 0.6 = 2.25 μg/m^3

Suppose area of tract 2: 100 m^2, area covered by monitors: 60% (20% by red, 50% by yellow, shared coverage (red + yellow) 10%)

PM2.5 value for census tract 2: shared area average (1/6) + red coverage (1/6) + yellow coverage (4/6)

= [(1.5 μg/m^3 + 1 μg/m^3) (1/2) x 1/6] + [1.5 μg/m^3 x 1/6] + [1 μg/m^3 x 4/6] = 0.2083 μg/m^3 +0.25 μg/m^3 + 0.667 μg/m^3 = 1.1253 μg/m^3

PM2.5 value for census tract 3: 1.5 μg/m^3